

ABSTRACT OF THE DISCLOSURE

A crystallization apparatus includes an illumination system which applies illumination light for crystallization to a non-single-crystal semiconductor film, and a phase shifter which includes first and second regions disposed to form a straight boundary and transmitting the illumination light from the illumination system by a first phase retardation therebetween, and phase-modulates the illumination light to provide a light intensity distribution having an inverse peak pattern that light intensity falls in a zone of the non-single-crystal semiconductor film containing an axis corresponding to the boundary. The phase shifter further includes a small region which extends into at least one of the first and second regions from the boundary and transmits the illumination light by a second phase retardation with respect to the at least one of the first and second regions.